

WHAT IS CLAIMED IS:

*Sub A17*

1. A quantization method for an iterative decoder, comprising the steps of:  
equally dividing received signal levels into predetermined intervals, said intervals  
occupying a range  $2^l$  ( $l$  is a positive integer) times greater than a transmission signal level  
range of a transmitter; and  
quantizing the level of a signal received in each period, using the predetermined  
intervals.

10 2. The quantization method of claim 1, wherein  $l$  is 2.

15 3. The quantization method of claim 1, wherein  $l$  is 1.

4. The quantization method of claim 1, wherein the iterative decoder  
includes at least one component decoder, said at least one component decoder computing  
a metric using a predetermined number of bits more than bits required to represent the  
received signal levels.

20 5. The quantization method of claim 4, wherein the predetermined number  
of bits are two bits when the iterative decoder has a code rate 1/4 or above.

25 6. The quantization method of claim 4, wherein each component decoder  
operates on an input signal using a maximum a posteriori probability (MAP) algorithm or  
a soft output Viterbi algorithm (SOVA ).

7. A quantization method for a turbo decoder in a communication system,  
comprising the steps of:  
equally dividing received signal levels into 8 or 16 quantization scaling factor

intervals using 5 to 7 quantization bits within a range  $2^l$  ( $l$  is a positive integer) times greater than a transmission signal level range of a transmitter; and

quantizing the level of a signal received in each period, using the intervals.

5           8.       The quantization method of claim 7, wherein 1 is 2.

9.       The quantization method of claim 7, wherein the number of the quantization bits is 6.

10          10.      The quantization method of claim 9, wherein the quantization scaling factor interval is 8.

11.      The quantization method of claim 7, wherein the iterative decoder includes at least one component decoder, said at least one component decoder computing a metric using a predetermined number of bits more than bits required to represent the received signal levels.

12.      The quantization method of claim 11, wherein the predetermined number of bits are two bits when the iterative decoder has a code rate 1/4 or above.

20          13.      The quantization method of claim 11, wherein each component decoder decodes an input signal using a maximum a posteriori probability (MAP) algorithm or a soft output Viterbi algorithm (SOVA ).